

modified by changes in temperature, by the constitution of the culture medium, by the age and physiological state of the colonies.

#### REACTIONS OF LAND ISOPODS TO LIGHT

Abbot (Jour. Exp. Zool. Nov. 1918) finds that the land isopods, *Oniscus* and *Porcellio*, are negatively phototactic to all intensities from 0.01 C.M. to 100 C.M., whenever not immersed in water. He concludes that the orientation is direct and not by selection of random movements; and that this negative phototaxis is apparently a factor in fitting them for life on land by aiding to keep them in a suitably moist habitat. The negative quality is more pronounced in *Oniscus*, which has the more restricted habitat.

#### ASSORTIVE MATING IN CHROMODORIS ZEBRA

Crozier (Jour. Exp. Zool. Nov. 1918) finds that there is high degree of assortive mating in the large nudibranch mollusc *Chromodoris zebra*. This assortive mating expresses itself in the correlation in the size of mates—large with large and small with small. Since the species is hermaphrodite and a mutual exchange of sperm is normally to be effected, this selective mating on the basis of similar size and consequently appropriate position of the reciprocal organs is an advantageous adjustment. It is a conservation of sexual elements; and when large individuals mate together the numbers of eggs fertilized is greater than would be true in mismatings at random.

#### ADAPTIVE COLORATION IN CHROMODORIS ZEBRA

Crozier (Baltimore meeting of Am. Soc. of Zool. 1918) concludes that the coloration in *C. zebra* has no adaptive significance either in its origin or at present. This, in spite of the fact that the organism has brilliant yellow pigment, that there is sufficient variation in coloration to furnish basis for selection, that the species actually suffers extensive injuries from animals capable of seeing the color, and that it possesses "an efficient repugnatorial apparatus" which would conceivably make "warning" coloration useful. The types of injury seem in no way correlated with either the intensity or the distribution of the pigment.

#### CAMOUFLAGE IN REEF FISHES

Longley (Baltimore Meeting Am. Soc. of Zoology, 1918) reports studies on the coloration and habits of West Indian and Hawaiian

reef fishes. He finds that their fixed colors, excepting red, repeat the dominant color of the surroundings, and that the change of color in moving from place to place is induced by, and on the whole in accordance with, the nature of the places into which they go.

When the following varieties of color are possible to the individuals of a given species, cross-banded markings are likely to be shown when at rest, and longitudinal or self-colored phases when about to move or when actually moving.

To the fact of change of color when moving horizontally, the author adds the observation that there are similar definite phases of color change in some fishes for vertical movement. A vertical change of even a few inches may be followed by definite changes of color. The author feels that some of the changes of color usually charged as being connected with mating are probably so to be considered only because of place changes at the reproductive season, rather than as directly related to reproduction.

#### GLYCOGEN IN THE NERVOUS SYSTEM

Gage (*J. Comp. Neur.* June 1917) uses the methods of microchemical analysis to determine the presence and quantity of glycogen in the nervous system of Vertebrates. He finds abundant glycogen in the cells of the nervous system, at some stage of development, in all groups of vertebrates from amphioxus to mammals. Amphioxus, the lamprey, *Amblystoma*, the chick, and the pig were carefully studied. Glycogen is also found plentifully in sensory epithelia and in related organs.

The author feels from his results that glycogen is an essential accompanier of the development of nervous (and all other) tissues, especially in their functional stages;—being produced and used by the protoplasm as an essential feature of its metabolism. After the tissues, nervous and other, reach their final form this glycogenic function, as we know it in the higher forms, may be given up largely by the various tissues, and be taken over by the liver and the muscles.

#### EFFECT OF STRAIN ON DEVELOPMENT OF BONE

Howell (*Anat. Rec.* Vol. 13, Oct. 1917) produces paralysis of the muscles working the bones of the arm and shoulder by cutting the main nerves of the brachial plexus in young puppies. This removed